Please amend the claims as indicated below:

1-56. (Cancelled)

D[1]

57. (Previously amended) The method of claim 104, wherein:
the first metal layer is applied to first surface regions of the topographical structure at a first angle of incidence other than 90° to the surface structure, and
the second metal layer is applied to second surface regions of the topographical structure at a second angle of incidence other than 90° to the surface structure, such that the first and second metal layers are overlapped at discrete surface parts of the detector.

58. (Previously added) The method of claim 57, wherein said first and second metal layers are comprised of respective metals which, when the first and second metal layers are overlapped, perform the function of a thermocouple at the discrete surface parts of the detector.

59. (Currently amended) The method of claim 104, wherein ~~there is a limited surface region of the base structure, which is less than the entire surface region of the base structure;~~ the method further ~~comprising~~ comprises:
applying said electromagnetic radiation detector on ~~the~~ a limited portion of the surface ~~region~~ of the base plate; and
applying required electric conductors or electric circuits to the thermal element on the limited surface ~~region~~ portion.

60. (Currently amended) The method of claim 104, ~~further comprising producing~~ wherein the step of forming said base ~~structure by~~ plate comprises the step of topographically shaping the base ~~structure~~ plate against a die or mold; that exhibits a complementary topographical structure to the topographical structure.

61. (Currently amended) The method of claim 60, further comprising producing at least part of the die or mold that produces the topographical structure shaping, by a plating process on a model that includes a topographical structure ~~adapted~~ complementary to the topological structure for the electromagnetic radiation detector.

62. (Currently Amended) The method of claim 104, further comprising the steps of:

producing the base plate ~~structure~~ by a shaping operation against a die or a mold, having a complementary topographical structure for defining the topographical structure of the base ~~structure~~ plate in the cavity chamber;

forming the mold for the shaping operation by mechanically working a substrate, wherein the configuration of the substrate is complementary with respect to the topographical structure to be formed.

63. (Cancelled)

64. (Previously amended) The method of claim 104, wherein onto the surfaces in the gas cell are applied with the same metals as applied onto the topographical structure associated with the detector at the same time.

65. (Currently amended) The method of claim 104, wherein the topographical structure is shaped so that applying said first and second electrically conductive metal layers provides connection pads to said electromagnetic radiation detector, electric conductors and circuits for the components before the detector, in addition to ~~providing the metal layers of the detector~~ forming the thermo-electric sensor element.

66. (Cancelled)

67. (Previously added) The method of claim 57, further comprising forming the topographical structure of the detector to include a number of ridges, spaced apart from each other, each

ridge having opposite first and second side surfaces and an upper surface, and a respective intermediate conductive surface defined between adjacent ridges;

the first angle of incidence of applying the first conductive layer is selected so that the first side surface and at least part of the upper surface of each of the ridges and at least part of the intermediate conductive surfaces between adjacent ridges are coated with the first layer;

the second angle of incidence of applying the second conductive layer is selected so that the second side surface and at least part of the upper surface of each of the ridges and at least part of the intermediate conductive surfaces between adjacent ridges are coated with the second layer;

wherein the first and second angles of incidence are selected so that the first and second metal layers overlap and form electric contact with each other on the upper surfaces of the ridges and also on the intermediate conductive surfaces between adjacent ridges, causing the metal layers to form a series of electrically interconnected junctions between the first and the second metal layers.

D'

68. (Currently amended) The method of claim 67, further comprising positioning the source of incident electromagnetic ~~waves~~ radiation with respect to the locations of the ridges such that ~~incident~~ the electromagnetic radiation ~~irradiate~~ irradiates the upper surfaces of the ridges and such that the intermediate conductive surfaces between ridges are shaded against ~~incident~~ electromagnetic ~~waves~~ radiation by the ridges.

69. (Currently amended) The method of claim 67, further comprising forming electrically insulated surface sections between adjacent ridges and with the intermediate conductive surfaces and also surrounding surface sections of the base ~~structure~~ plate.

70. (Currently amended) The method of claim 69, further comprising electrically insulating the insulated surface sections between adjacent ridges by positioning insulating ridges with adjacently located insulating surfaces relative to the conductive surfaces on the ridges and relative to the first and second angles of incidence to exclude coating of both of the first and the second metal layers on the insulating surface sections.

71. (Currently amended) The method of claim 67, comprising arranging the ~~conductive~~ ridges in a configuration forming "n" number of columns of ridges with "m" number of ridges in the columns, wherein "m" may be a different number in respective ones of the columns, such that the first ridge in each column except for the ~~"nth"~~ first column and the "mth" ridge in each column except for the "nth" column form an interconnecting ridge, wherein the "mth" ridge in each column except the "nth" column is connected to the first ridge of the next following column, such that the resultant junctions, between the first and second metal layers on all of the conductive ridges in all of the columns, form a series of electrically interconnected junctions.

72. (Previously added) The method of claim 71, further comprising forming the electrical interconnection between an "mth" ridge in a column and a ridge in an adjacent column comprises forming an electrically conductive surface section between the adjacent columns such that the conductive surface is electrically connected to interconnecting ridges belonging to the adjacent columns while being otherwise insulated from the adjacent columns.

D1

73. (Currently amended) The method of claim 67, wherein:

the ~~conductive~~ ridges having conductive surfaces thereon together form a series connected thermocouple ~~and~~

the intermediate layer on one of the side surfaces of a ridge or a conductive surface adjacent to the ridge in a series of the ridges forms a first thermocouple connecting electrode and

a first or second side surface of a last ~~conductive~~ ridge having conductive surfaces thereon or a conductive surface adjacent the last ~~conductive~~ ridge in a series of the ~~conductive~~ ridges having conductive surfaces thereon forms a second thermocouple connecting electrode.

74. (Currently amended) The method of claim 67, further comprising:

covering the upper surfaces of the ~~conductive~~ ridges having conductive surfaces thereon with a heat absorbing layer and

covering the intermediate conductive surfaces between the ridges with a heat reflecting layer.

75. (Currently amended) The method of claim 74, wherein the heat absorbing layer is comprised of carbon and the heat reflecting layer is comprised of ~~a~~ at least one metal layer.

76. (Currently amended) The method of claim 68, wherein ~~the metal of~~
one of the first and second metal layers has a first reflection coefficient in relation to the electromagnetic ~~waves~~ radiation; ~~and that the metal of~~
the other of the first and second metal layers has a second reflection coefficient in relation to the electromagnetic ~~waves~~ radiation; and
the ~~conductive~~ ridges having conductive surfaces thereon are so shaped and located in their positions relative to the incident electromagnetic ~~waves~~ radiation that the metal layer with the lowest one of the first and second reflection coefficients covers the side surfaces that face the ~~incident~~ electromagnetic ~~waves~~ radiation, ~~and the method comprising positioning~~ the metal layer of lowest reflection coefficient being positioned to face the ~~incident~~ electromagnetic radiation.

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77. (Previously added) The method of claim 67, wherein the first and second metal layers are of different metals to obtain a thermoelectric effect between the first and the second metal layers.

78. (Previously added) The method of claim 76, wherein the first and second metal layers are respectively comprised of gold which covers chromium.

79-80. (Cancelled)

81. (Previously amended) The detector of claim 102, wherein:
the first metal layer is positioned on portions of the topographical structure which receive the first metal layer applied to the topographical structure at a first angle of incidence other than 90° and

the second metal layer is positioned on portions of the topographical structure which receive the second metal layer applied to the topographical structure at a second angle of incidence other than 90° and different from the first angle, whereby the first and second metal layers mutually overlap on discrete surface parts of the topographical structure.

82. (Previously added) The detector of claim 81, wherein the first and second metal layers are comprised of respective metals which function as a thermocouple at the discrete surface parts where they overlap.

83. (Cancelled)

84. (Currently amended) The detector of claim 102, wherein:
the base ~~structure~~ plate on which the topographical structure is formed is an integral part, and
the electromagnetic radiation detector associated surface parts form an integral part of the inner surface of the ~~cavity~~ chamber.

D1

85. (Currently amended) The detector of claim 102, wherein the interior of the ~~cavity~~ chamber is coated with ~~the same~~ a metal which is the same as one of the metals comprising as the topographical structure of the electromagnetic radiation detector.

86. (Currently amended) The detector of claim 102, wherein the topographical structure is shaped for providing connection pads to the electromagnetic radiation detector, electric conductive paths and circuitry to the first and second metal layers.

87. (Cancelled)

88. (Currently amended) The detector of claim 81, wherein the topographical structure comprises:
a plurality of conductive ridges extending from the surface of the base ~~structure~~ plate, each conductive ridge having a first side surface,

a second side surface different from the first side surface, and an upper surface facing out of the base ~~structure~~ plate on which the topographical structure is positioned;

an intermediate conductor surface located between adjacent ones of the conductive ridges;

the metal layers being disposed on the surfaces in a manner such that:

the first angle of incidence for application of the first metal layer is selected to coat the first side surfaces and at least part of the upper surface of the conductive ridges and at least a part of the intermediate conductive surface between the ridges with the first metal layer,

the second angle of incidence for application of the second metal layer is selected to coat the second side surfaces and at least part of the upper surface of the conductive ridges and at least a part of the intermediate conductive surfaces between the ridges with the second metal layer, and

so that the first and second metal layers overlap and provide electric contact on the upper surface of the conductive ridges and on the intermediate conductive surfaces between the conductive ridges, whereby the metal layers form a series of electrically interconnected junctions between the first and second metal layers.

89. (Currently amended) The detector of claim 88, wherein the topographical structure including the ridges are positioned relative to ~~incident~~ electromagnetic ~~waves~~ radiation so that the ~~waves irradiate~~ radiation impinges on the upper surfaces of the ridges but the ridges shadow the intermediate conductive surfaces against incident electromagnetic ~~waves~~ radiation.

90. (Currently amended) The detector of claim 88, further comprising electrically insulated surface sections defined between the ridges at the intermediate conductive surfaces and also on surrounding surface sections of the base ~~structure~~ plate around the topographical structure.

91. (Currently amended) The detector of claim 90, wherein the electrically insulated surface sections comprise electrical insulating ridges including respective insulating surfaces disposed relative to each other, relative to the conductive ridges with the conductive surfaces and

relative to the first and second angles of incidence for application of the metal layers, so as to exclude application of both the first and the second metal layers on the insulating surfaces for providing electrical insulation within the eletromagnetic radiation detector.

92. (Currently amended) The detector of claim 88, wherein:

the ridges are configured and arranged on the base ~~structure~~ plate to form "n" number of columns of the ridges and each of the columns including "m" number of ridges, wherein the number "m" of ridges can differ in respective ones of the columns;

a first one of the ridges in each of the columns, except the ~~"nth"~~ first column and except the "mth" ridge within each column, but not the "mth" ridge of the last column, form interconnecting ridges, and the "mth" ridge in each column, except for the last column, is connected electrically with the first ridge of the next following column for causing the junctions between the first and second metal layers at all the ridges in all the columns of the ridges to form a series of electrically interconnected junctions.

93. (Previously added) The detector of claim 92, further comprising an electrically conductive surface section between adjacent columns of the ridges for providing the electrical interconnection between an "mth" ridge of a column and a first ridge in an adjacent column; the conductive surface section being electrically connected with interconnecting ridges in adjacent columns.

94. (Previously added) The detector of claim 88, wherein the series of conductive ridges forms a series connected thermocouple; the metal layer on a first or second side surface of a first ridge or a conductive surface adjacent the first ridge in the series of ridges forms a first thermocouple connecting electrode and a first or second side surface of a last ridge or a conductive surface adjacent the last ridge in the series of ridges forms a second thermocouple connecting electrode.

95. (Previously added) The detector of claim 88, further comprising a heat absorbent layer covering the upper surface of each of the ridges; and

a heat reflecting layer covering the intermediate conductive surfaces between adjacent ridges.

96. (Currently amended) The detector of claim 95, wherein the heat absorbing layer is a layer of carbon and the heat reflecting layer is comprised of ~~a~~ at least one metal layer.

97. (Currently amended) The detector of claim 89, wherein:

one of the two metal layers has a first reflection coefficient with respect to the electromagnetic waves ~~and~~

the ~~second~~ other metal layer has a second reflection coefficient with respect to the electromagnetic waves; parts of the detector are positioned relative to the incident electromagnetic waves and

~~the metal layers and~~ the conductive ridges are so positioned that the metal having the lowest of the first and second reflection coefficients covers the side surfaces of the ridges that face the incident electromagnetic waves.

98. (Previously added) The detector of claim 81, wherein the metals of the first and second metal layers are different to obtain a thermoelectric effect between the first and second metal layers.

99. (Previously added) The detector of claim 98, wherein the first and second metal layers respectively comprise gold covering chromium.

100. (Currently amended) The detector of claim 102, wherein the base ~~structure~~ plate includes a surface section for receiving at least two ~~of the~~ electromagnetic detectors.

101. (Cancelled)

102. (Currently amended) A gas detector comprising:

a flat base plate formed of a plastic material;

a gas cell formed by the base plate and a hollow chamber of plastic material extending from a surface of the base plate, the chamber being operative to enclose a volume of gas to be evaluated;

a source of electromagnetic radiation coupled to the gas cell for emission into the chamber;

~~a coating on an inner surface of the chamber formed of at least one metal layer which is highly reflective surface with regard to the electromagnetic radiation~~; and

an electromagnetic radiation detector formed integrally with the base plate and located within the chamber, the electromagnetic radiation detector being comprised of:

a three-dimensional topographical structure formed on the baseplate within the chamber;

and first and second electrically conductive metal layers on the topographical structure, the metals of the first and second electrically conductive layers being so chosen and positioned that they cooperate to form a thermoelectric element.

D'

103. (Currently amended) added) The detector of claim 102, ~~wherein the~~ further including circuit arrangements for the conductive metal layers ~~are~~ located outside the chamber.

104. (Currently amended) A method for forming a gas detector comprised of a base plate, a gas cell comprised of a chamber attached to the base plate, a source of electromagnetic radiation coupled for emission into the gas cell chamber, and an electromagnetic radiation detector in the form of a thermoelectric array mounted on a three-dimensional topographical structure integral with the base plate and located inside the chamber, the method comprising the steps of:

forming a master structure as a pattern for the base plate, the pattern including, in an area corresponding to a portion of the base plate which will be inside the chamber, ~~the~~ a three-dimensional structure corresponding to the topographical structure ~~of the detector~~ on which the thermoelectric array is to be mounted;

forming a master structure as a pattern for the structure forming the chamber;

forming the base plate and the chamber using the respective master structures;

~~depositing at least one metal layer on the inside of the chamber to form the reflective surface thereon;~~

applying a first electrically conductive metal layer onto the topographical structure by directing a stream of metal particles toward the base plate at first angle of incidence other than 90°;

applying a second electrically conductive metal layer onto the topographical structure by directing a stream of metal particles toward the base plate at a second angle of incidence other than 90°, with the first and second metal layers being in contact with each other in at least one region on the topographical structure to form the thermo-electic sensor element of the detector;

assembling the detector by attaching the chamber to the base plate with sensor enclosed therein; and positioning the source of electromagnetic energy for emission into the chamber.

D'

105. (New) The detector of claim 102, further including a coating on an inner surface of the chamber formed of at least one metal layer which forms a highly reflective surface with regard to the electromagnetic radiation

106. (New) The method of claim 104, further including the step of depositing at least one metal layer on the inside of the chamber to form a reflective surface thereon.